FOREIGN AGRICULTURE

August 1962

Along the road in Communist China

Red China's Farm Failure

The Cuban Sugar Harvest

Agriculture and Political Destiny

UNITED STATES DEPARTMENT OF AGRICULTURE · FOREIGN AGRICULTURAL SERVICE

To report and interpret world agricultural developments

FOREIGN AGRICULTURE

Vol. XXVI · No. 8

August 1962

Our Minor Exports

We are fortunate in being able to present to our readers this month several articles on topics of headline importance. Our lead article, "Red China's Farm Failure," is one. The report on Cuba's sugar harvest is another. We also have prominent West German economists looking at the Common Market as it relates to their country's agriculture.

In contrast is a small story on page 16 which tells about the 50 million tomato seedlings that Georgia farmers send to Canada each year. Certainly a most insignificant item in our big farm trade. Yet seedlings and all the other minor farm products that we ship abroad are not insignificant to the people that produce them nor to those that buy them. And they add up to millions of dollars in trade each year. For example—

Mohair—we ship $15 million worth of this fiber abroad annually and are now the world's leading mohair exporter.

Peppermint—we are the world's biggest supplier of peppermint oil too, with yearly earnings of over $4 million.

Natural sausage casings—another $15 million comes in from these.

Baby foods—fifty countries around the world buy them to the amount of nearly $16 million.

Safflower seed—a new U.S. oilseed export, with a $10-million market in Japan.

We could name a lot more, but even this short list is enough to show that the "little" export is not always so little in dollars and cents and, if we are going to serve our subscribers, is well worth reporting on. Not everyone can grow wheat or cotton, nor is everyone interested in the agricultural troubles of Cuba or Communist China.

Cover Photograph

Men pulling carts is a common sight on the roads in Communist China, for, as Brice Meeker points out in our lead article this month, draft animals are critically short.

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Foreign Agriculture is published monthly by the Foreign Agricultural Service U. S. Dept. of Agriculture, Washington 25, D. C. Use of funds for printing this publication has been approved by the Director of the Bureau of the Budget (Sept. 4, 1959). Yearly subscription rate is $2.00, domestic, $2.75, foreign; single copies are 20 cents. Orders should be sent to Superintendent of Documents, Government Printing Office, Washington 25, D.C.

Left, Chinese commune workers winnowing grain. Below, water buffalo draws hand plow. With farm output shrinking, government is now giving more attention to agriculture.

Photos courtesy John L. Strohm

Red China's Farm Failure

–key to its shifting foreign trade patterns

By BRICE K. MEEKER
U.S. Agricultural Officer
Hong Kong

Mainland China is currently in the midst of an economic crisis. Stagnation, retrenchment, and shortages afflict every part of the economy, and every citizen feels the results as he conducts the ordinary business of life.

How this came to pass is a story simply told. Since 1955, collectivization and the central planning and direction of agriculture have been upsetting one of the most intricate traditional farming communities human history has even seen. Then, in 1960 and 1961, bad weather piled in on top of Communist-created chaos, and farm output fell dangerously low.

The balance between population and agricultural resources has always been unfavorable in China; it has now become worse, and there is even less food for more people. In response to the shrinkage of farm production, the regime has not only slowed down its industrialization effort and given more attention to agriculture, but also has reduced its foreign trade turnover and radically altered the pattern of its foreign trade with the Communist Bloc and with the Free World.

The details of the domestic economic crisis tend to be as obscure as the general position is clear. Though no firm figures on individual crops have been available from Communist China for 4 years, the hard facts are very apparent. Grain production in 1961 is believed to have totaled around 165-170 million metric tons (including potatoes on a grain-equivalent basis). This was slightly better than in 1960, but 5-10 percent below the 1955-58 average; and 1961 marked the third successive year of below-average grain production.

Since by the end of 1960 the population was some 30 million to 40 million persons greater than at the end of 1957, the calories per capita available from grain, which makes up from 80 to 90 percent of caloric intake, had fallen sharply.

The spring of 1961 was a most difficult period for the Chinese people. Many of them suffered from so-called famine edema, the swelling brought on by nutritional deficiencies; and diseases flourished because natural resistance was low. The government responded to the crop declines by restoring private plots in 1961. This improved the vegetable supply and has tended to check the decrease in other subsidiary food sources such as pigs and poultry. Oilseed production, however, was no better in 1961 than in 1960, and even with reduced exports, there is probably less oil available than last year. In the spring of 1962 the food situation was slightly better than a year ago, as much because of the larger 1961 grain crop as because of grain imports.

Cotton production in 1961 was lower even than in the subnormal year of 1960. Rationing of fabrics has been extremely stringent for 2 years.

The agricultural crisis has administered a severe check to the regime's industrialization program. Capital construction was sharply reduced in 1961 and will be further reduced in

1962. The output of industry is declining in 1962 for the third successive year—especially that of light industry, which depends heavily on agricultural raw materials. This has meant a cut in light industrial exports which, with the grain imports that have had to be made, has sharply reduced imports of capital goods.

Farming Difficulties

What are the prospects for economic recovery? On balance, not very good. There is one essential condition for recovery, and certainly for any degree of progress in an industrialization program—that is, to bring agricultural production back to the point where it not only can support the population at a tolerable level of living but can generate capital for the developmental process. But agricultural recovery depends on being able to put the Chinese agricultural "Humpty Dumpty" together again.

Just to outline some of the problems reveals their scope. For example—

- Exploitation of the Chinese peasant in communes and other collective institutions has led to a severe deterioration in his means of production. Fertility levels of the better croplands have fallen. Such simple and basic tools as hoes, spades, sickles, plows, water wheels, and carts have worn out faster than they can be replaced from the limited factory output. Draft animal power is critically short.

- Shortages of draft power and tools have acutely worsened the ever-critical problem of getting the planting and harvesting completed in season. This not only affects the output of the crop involved but over much of China upsets the timing on two or more crops.

- The delicate balance of soil fertility that has been maintained over the centuries by the use of human and pig excrement has been impaired under collectivized farming. Pig numbers have sharply declined, and peasants save their own nightsoil for their private plots whenever they can.

- Traditional rotations and complex interplanting systems have been destroyed. Too often, continuous cropping of cereals has replaced pre-Communist farming systems; and this has led to problems with the soil, weeds, and insects. In addition, double cropping and interplanting have been put into practice in areas where they are not justified either by length of growing season or by precipitation levels.

- Finally, and perhaps most importantly, the peasants are apathetic and indifferent. Labor productivity has always been low on Chinese farms because of small plots and dependence on hand tools; now it is lower than ever.

Effects on China's Trade

The impact of this farm crisis on the level and pattern of Communist China's foreign trade can be broadly described as follows:

Total trade turnover has shrunk because China has had less to export. Its export volume has depended on agricultural products and on light industrial products, mostly made from agricultural raw materials.

Of China's total imports, a larger share is coming from Western sources. This reflects the heavy grain purchases being made from Australia, Canada, and other Western countries.

Of China's total exports, a smaller share is going to the Soviet Union. This reflects China's need to earn foreign exchange from the West for the purchase of grain.

Except for grain, China is importing much less from the West, so as to have foreign exchange available for the grain purchases.

Any forecast of Red China's trade future in the next 5 years or so involves guesswork on at least three important questions. Will there be an open political break between the Russians and the Communist Chinese? Will the current Peiping regime exercise less control over the Mainland than it does now? And will any new sources of grain supply and credit become available to Red China?

If the answer to all three questions is, No, it seems likely that China's global trade turnover has reached bottom or will do so during 1962. There is little chance of any major recovery over the short run. Certainly, any return to the average level of 1958-60—about $3.8 billion—is hard to visualize for the next few years.

Within this smaller trade total, the USSR-Free World ratios of China's trade will tend to shift. The abnormal import ratio of 1961, when 66 percent[1] of the total came from the West, will probably drift toward a decreased Western share. The 1961 export ratio of 52 percent[1] to the West is about the maximum, and by 1964 and 1965 this share will decline.

The Export Outlook

These views are based partly on the complex arrangements China is using to handle its large financial obligations to the Soviet Union. In 1960, Communist China's balance of payments deficit with the Soviet Union—including debt retirement and servicing—was $320 million. This was added to a debt base of at least $1 billion; but, by agreement, it was funded as a short-term debt outside of the regular schedule of long-term debt repayment. Thus, the 1960 deficit is to be retired at the end of 1965, with the greater part of the repayment to be made in the last 2 years.

Under these arrangements, it is hard to see how China can do otherwise than increase the USSR's share of its total export volume—barring a radical and tremendously disruptive cut in the already reduced level of Soviet purchases. This might well imply a political break, which would undoubtedly result also in China's repudiation of its debt obligations to the Soviet Union.

Still assuming, however, the "no" answer to our three questions, the probable outlook for China's exports of rice, soybeans, tung oil, and cotton products to Western destinations is generally favorable for the United States for the next few years. There will, of course, be year-to-year variations in Western takings of any one commodity; but exports to the Free World are very likely to run below the 1958-60 averages, which were as follows: Rice 750,000 metric tons, soybeans 18.6 million bushels; tung oil 20,000 metric tons, and cotton yarn and manufactures $87.6 million.

No survey of Chinese Communist

[1] Estimated on basis of partial trade returns of Communist China's trade with West in 1961.

Above left, cotton mill workers with bobbins of yarn, and right, factory dining room where food appears to have been ample when the picture was taken 3 years ago. Today food situation is very bad.

Right, feeding the pigs. In 1961 the government gave back private farm plots and this helped check the drop in hog production.

foreign trade can pass over the subject of grain imports and foreign exchange. Not counting barter transactions, China bought about 5.6 million tons of grain for 1961 delivery. The value of these purchases on an f.o.b. basis was about $333 million, with about $200 million paid in 1961 and $133 million due in 1962.

Purchases of grain in 1962, or late in 1961 for 1962 delivery, total about 3.5 million tons with an f.o.b. value of about $235 million.

Totaling the various payments and commitments gives $568 million. This total does not include transportation costs, interest on credit balances, and brokerage and handling charges, which will add roughly 12 to 15 percent. Thus we can say that by mid-1962 China's grain purchases since late 1960 will have cost it foreign exchange of about $645 million.

Peiping's current foreign exchange position depends, of course, on the size of the reserves with which it entered 1961. During that year an extraordinary effort was made to generate foreign currency earnings. This effort had, by and large, an impressive degree of success, and I think we will find when all the data are in that China earned from the Free World something between $200 million and $250 million on visible account, excluding the value of grain imports.

The same kind of effort is being made in 1962, and its success or failure will have great bearing on the 1963 position. If there is to be a crisis with foreign exchange holdings, it will begin to show in the first half of 1963 when payments on 1962 grain purchases are due. As best I can determine, China's holdings will be sufficient to fund its obligations, but some Western experts believe they will fall to a level significantly below $100 million. This would be an extremely tight working margin for a nation whose total trade turnover with the Free World is well over $1 billion.

I see few prospects for a lasting solution to China's difficulties. Normal weather for the next few years would cure the more painful symptoms of food shortage and might permit the resumption of a limited degree of economic progress. But China's weather is notoriously uncertain, and under the present agricultural system a year of mediocre or poor weather would bring the food shortage back.

The problem is the system itself, which complicates rather than solves the age-old Chinese puzzle of how to feed more people than the land can support. Eventually, the system might adapt or be displaced, but hardly in the near future. Thus, with varying degrees of acuteness, Mainland China's economic illness is likely to persist.

Agriculture and Political Destiny

Just as the basic character of American civilization was determined at the agricultural frontiers, so the social and political structure of the emerging nations will be shaped by the agricultural institutions that they create.

By ERVEN J. LONG
Agency for International Development

As the underdeveloped countries enter into accelerated programs of economic development they will enter also into a period of social and institutional changes—changes as demanding and as profound as those which lay ahead for our forefathers when they reached American soil.

As in the early years of our country's history, the basic social and political character of the emerging nations are now being forged at their agricultural frontiers. Agricultural development of these countries involves different types of frontiers, to be sure—a pushing back of present scientific and technological, rather than geographic, horizons. But massive adjustments of old institutions, and creation of new values, will just as inevitably result from bridging the time-gap of centuries of technological progress as they did from crossing the Alleghenies and the Mississippi and from subduing the forests and the prairies.

Social Change

The drive for economic progress, which is becoming the political imperative of every underdeveloped country, makes irresistible demands for increased agricultural productivity. Among the institutions that thwart these aspirations for increased agricultural productivity in many countries is the greater-family or joint-family system, so prevalent in Asia. This system of social organization was admirably suited to its historic purpose of assuring survival of the group. But it does so at the expense of virtually all incentive to or reward for individual effort.

The need for efficiency in agriculture may well bring about profound changes in the primary social structure of societies now organized along tribal, greater-family, or clan lines. The political consequences will be very different —in fact, perhaps at opposite poles—if this adjustment takes the form of an orderly and gradual breaking-down of tribes and greater families into primary families, such as dominate in our country, than if they are organized into communes or similar social conglomerates.

Tenure Patterns

Even more seriously, development of an efficient agriculture is impeded, in many countries, by outmoded land ownership and tenure institutions. The particular types vary within as well as between countries.

The tribal ownership patterns in Central Africa—commonly accompanied by shifting cultivation, in which farmers slash and burn the forests, cultivate a year or two and move on, not to return for 10 to 20 years—provide little opportunity for efficiency in farming. Under this system, no capital formation nor investment in permanent farm improvement takes place. In much of Asia, land ownership institutions have historically kept the tiller of the land in a condition of complete economic subjugation.

In countries where there are few opportunities for employment off the land, those who own the land control thereby those who must make their living from it. The peasant, under such a system, has little incentive to work hard, and none to invest in his land, as this will merely cause his landlord to raise his rent or to dispossess him for a better paying tenant.

In much of Latin America, huge tracts of land, held in private ownership dating back to early land grants, are very slightly utilized or, often, totally undeveloped. Juxtaposed against this are thousands of tiny owner or tenant holdings very intensively utilized, but too small to provide more than bare subsistence. In one country, for example, only about 8 percent of the land on the largest group of farms is under cultivation, as contrasted with over 70 percent on the smallest group of farms.

Caught with the need for increasing agricultural production, countries in Africa, Asia, and Latin America will find it necessary to develop new tenure forms. Their choice of tenure policy will have definitive influences upon the countries' future, as was true in our country.

Several Asian countries—especially Japan and Taiwan—have conscientiously pursued programs of establishing owner-operated family farms. Productivity increased sharply after these land reforms—about 30 to 40 percent. But, more importantly, a new social and political structure was born. Tenants who previously had had no access to or interest in citizenship are now landowners who participate actively in local government, and in co-ops, on a basis of equality with their previous masters.

"Familyism"

Freed from fear of reprisal from landlords and moneylenders, cultivators no longer get their credit at usurious interest rates; they now run their own credit co-ops. The master-servant relationship between landowner and tenant has been broken, and in its place a social system is evolving based squarely upon the principle of equal rights of men. India and several other countries, each in its own way, are striving to achieve similar reforms.

But tenure "reforms" can lead in other directions. As is well known, the Communist countries, far from strengthening family-farm ownership, have sought to obliterate it. This is much more significant than might be supposed.

In the Western world the family is the primary unit of social organization. Our social system should be referred

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This article was taken from a paper given by Dr. Long at USDA's World Food Forum, held in Washington, in May. The views expressed are those of the author and not necessarily those of the Agency for International Development or of the Department of Agriculture.

to as "familyism"—not "individualism". If the doctrine of individualism in its most rugged form, of "to each only according to his contribution" were really followed, children would all starve and the race disappear. Within the family, it is "from each according to his ability, and to each according to his need"—as the family itself determines. Our agricultural policy, like our frontier history, has deliberately strengthened the family, and this fact has been built into the entire fabric of our society.

Strong "familyism", however, is ideologically repugnant to Communism. Therefore, knowing the important role which agrarian institutions play in shaping the general social and political structure, leaders of Communist nations have tried to destroy the family-type farm. They have paid a terrible economic price for this social and political objective, as attested by the continuing food deficits in Russia, the present hunger agonies of China, the essential abandonment of collective farming by Poland and Yugoslavia.

A clue as to the power of incentives in encouraging farm production is found in the fact that the 3 to 4 percent of the cropland in the Soviet Union which the government allows farmers to cultivate for their own use "accounted in 1959 for nearly half of total Soviet meat and milk production, more than 80 percent of eggs, 46 percent of green vegetables, and nearly two-thirds of potato production."

It is the great good fortune of the Free World that the land tenure system which contributes most strongly to democratic government is also the most productive. It is our great good fortune that Communist ideology and family farm ownership are somehow incompatible.

A System of Relationships

As the emerging nations make their choices and develop their policies for land tenure reform, they will in large measure be deciding not only their economic but also their social and political destinies. The political consequences of a country's choice of approach to agricultural development turn largely upon its effect on the nature of the relationship between rural people and government. For a family-farm system is not just a national landscape broken up into relatively small units. It is a system of relationships between rural people and government, a system of institutions dedicated to strengthening the family farm and the farm family.

It is also a system of governmental relationships to farm people based upon service—research service, credit service, extension service, marketing service, price-supporting service, and such. And it expands the opportunities and power of individual family action by providing means for utilizing voluntary and governmental group action by farmers on those problems families cannot solve alone.

Establishment of such a system of agriculture, in most underdeveloped countries, completely inverts traditional relationships between farmers and government. No longer can the governing be the masters and the governed the servants. Quite the opposite. No longer is conformance obtained by prerogative of a ruling minority, but by free choice of the majority.

So drastic a shift in relationships between the masses of rural people and government is not easy to achieve. It requires tremendous changes in the machinery of government, and, especially, in attitudes of people, both inside and outside of government. Its success often hinges on subtle factors.

Take the case of a credit program, for example. In a country whose heritage has been one of subordination of the masses to the will of a ruling group, a credit program administered directly to farmers by governmental officials can easily become an instrument for maintaining complete control of farmers. (Credit has been historically a favored tool of landowners and money lenders for maintaining both economic and political control over farm people.) On the other hand, the same credit, used for the same purposes on the farm, but administered by local farmer cooperatives, may work in just the opposite way—to call government assets to the service of farmers. By making farmers economically stronger and more independent, such credit institutions make them politically stronger and more independent as well.

Similarly, an extension program directed merely at distribution of information and supplies may have quite different consequences from one fundamentally dedicated to elevating the competencies of farm families to analyze and solve their own problems. Certainly an extension service in which local personnel are chosen, and programs worked out, by local farmers has very different political consequences from one in which the local worker is but the lowest member of a centralized administrative echelon.

Transfer of Power

There is still a final point—the one probably most significant to the political and social destiny of emerging nations. In many underdeveloped countries, economic development aspirations are interrelated with the transfer of political power from a colonizing government to a national self-government. Almost by necessity, these national governments are comprised primarily of people most closely related by education and experience to the previous colonial government. They represent, in a very real sense, a special nonrepresentative elite.

In our own country, this special elite was characterized by an extraordinary quality of thought, and of motive. In perspective it can be seen that this elite performed almost a custodian function—to develop the institutions which would prepare the country for the transfer of power to the people at large beginning with what we now call "the Jacksonian Revolution".

India today is working, under similar leadership, with great steadfastness of purpose and at times almost breathtaking vision to bring about this kind of transfer of power from the governing elite to the people of India at large. Cases in point are the strengthening of the local units of government (the panchayats), the strengthening of state versus central government and, especially, the extraordinary efforts to remove disparities due to caste.

These are extremely difficult undertakings because the prevailing institutions of government are primarily imported from Britain, whereas prevailing institutions of the

(Continued on page 20)

The Cuban Sugar Harvest

The present Cuban regime inherited a prosperous agriculture. Today food supplies are inadequate and output of sugar, Cuba's big crop, is falling off.

Though mechanization has been promised for cutting the cane, transportation from field to mill is often by ox-drawn cart.

By LEON G. MEARS
Regional Analysis Division
Economic Research Service

Cuba's sugar harvest this year was, with the exception of 1955, the poorest since World War II. Output was down 30 percent from the 1961 crop; and prospects are dim for much improvement next year.

For Cuba this borders on catastrophe. The island lives on sugar. It is grown on almost 60 percent of the cultivated land. The sugar industry employs half a million workers and accounts for 25 percent of the national product. Furthermore, only about 6 to 7 percent of the production goes for home consumption each year. The rest is exported.

These sugar exports represent over four-fifths of Cuba's foreign shipments. And how much sugar Cuba can sell abroad—and at what price—determines the level of imports it can afford, which, in turn, bears directly on the island's food consumption.

(Cuba has long been the world's leading sugar exporter. In 1961 it provided about one-third of all sugar moving in world trade, or six times as much as its closest competitor. Exports that year totaled 6.4 million metric tons, almost four-fifths going to the Sino-Soviet Bloc.)

Target Not Met

The 1962 *zafra*—the sugar harvest season—began more slowly than usual in January and never matched the pace of recent years. Nor did it approach the goals set by the government. The final output of 4.8 million metric tons was 600,000 tons short of the official target set in January and compared poorly to the 6-million-ton-production averaged in the preceding 5-year period, 4 years of which had restricted harvests.

There are many reasons for this drop-off, among them, critical labor difficulties, little new cane planting in the years 1959-61, inefficient management of the "cane cooperatives," and inadequate cultivation and harvesting practices. Below-normal rainfall in some areas during the 1961 growing season was also a factor.

Much of this was frankly admitted by Carlos Rafael Rodriguez, president of Cuba's National Agrarian Reform Institute, on a nationwide broadcast on June 22:

"Our harvest was only 4.8 million tons. This is a great deal of sugar but it is not sufficient to fill the export needs of our country. We should have had, and we could have had, a larger harvest in spite of the drought and everything. Yet we did not. We did not have a larger harvest because of the mistakes made in the cooperatives and in the orientation work of agriculture, because we did not correctly manage the medium and small farmers, and because we paid no attention to the whole of agriculture."

Labor—Biggest Headache

Indifference on the part of both skilled and unskilled labor is perhaps the major problem facing Cuba's sugar industry. Because economic rewards are not commensurate with the work, there is little enthusiasm to produce. Also, the worker finds that there is little to buy with what he earns.

As a result, per capita labor pro-

ductivity appears to be declining rapidly. Time after time planting and harvesting goals and target dates were not met; and, although the year's sugar harvest was far below normal, the *zafra* was extended in most areas so that all cane could be cut. Thousands of "volunteers" from the cities and the militia were used to help harvest the cane.

Had it not been for labor troubles the decline in output might not have been so great. Cuba's mill capacity far exceeds output, and there were few reports of mills ceasing operations because of machinery difficulties. On the other hand, there were repeated instances of insufficient cane or sporadic supply interrupting the grinding and processing operations.

Also, fertilizers applied to the cane in 1961 reportedly totaled 210,000 metric tons, which is substantially more than normally utilized. But shortage of labor prevented the fertilizer from being applied at the right time, and in some instances, it actually damaged the cane by being applied during the dry period.

This labor problem will affect next year's harvest too, for it prevented the government from carrying out its plans for replanting large areas. Only about a third of the 330,000 acres scheduled for replanting this spring was actually planted. Workers were too busy cutting this year's crop to be drawn off for planting next year's.

This has led to a government decision to mechanize cane-cutting. The Agrarian Reform Institute has plans for building 1,000 cane-cutting machines, to begin operations during the 1963 harvest. But if labor shortages continue to grow, this will be only a small part of the number of machines that will be needed.

Sugar Exports Down

Large carryover stocks of sugar from previous years will partially offset this year's low output. Nevertheless, exports are expected to be down about 15 percent from the 1961 level.

Production, combined with the 1.2-million metric ton carryover from 1961, indicates that 6 million tons will be available for domestic consumption and export. Of this about 450,000 tons, according to the Cuban Government, will be required to satisfy domestic needs and around 50,000 tons—much less than the traditional amount—will be carried over. This leaves about 5.5 million tons for export this year.

Most of Cuba's sugar now goes to the Sino-Soviet Bloc under barter arrangements. In 1961, exports to the Soviet Union totaled 3.3 million metric tons, and they are expected to be just under 3 million this year. Communist China is the second market and is scheduled for 1 million tons. The Bloc as a whole has agreed to take 4.86 million metric tons each year from 1962 through 1965. However, in February the Cuban Government announced that it had reached an agreement with the Bloc to reduce the quantity of sugar to be delivered this year by 500,000 tons.

Normally the Bloc as a whole is a net exporter of sugar, and stocks are building up.

Although the USSR announced that it would not resell Cuban sugar, it "loaned" 500,000 tons to Communist China in 1961, and that country has an option to take 800,000 tons this year. Furthermore, other Bloc countries have not only resold Cuban sugar but have diverted to the Free World market sugar that was previously exported to the USSR.

Agrarian Reform and Sugar

Cuba's Agrarian Reform Law was promulgated in mid-1959, and by the end of October 1960 the government announced that all 161 sugar mills had been nationalized and practically all large sugar estates expropriated. According to the law, expropriated land was for "distribution among the peasants and agricultural workers who had no land." Exception was made, however, for lands granted in usufruct to "agricultural production cooperatives" organized by the government.

In practice, the exception has proved more important than the rule. Little land has been distributed to landless farmers. Instead, the government has followed a policy of keeping the former large private sugar estates more or less intact and organizing them into state-owned cooperatives. These sugarcane cooperatives resemble Soviet collectives. Each is administered by a government official who obtains credit, keeps records, and directs activities. Members of the cooperative initially paid production costs and received a daily wage plus a share of the profits. Today they are essentially wage earners, and some of the earnings are in the form of script, good only at the local "people's store."

By early 1962 the cane cooperatives numbered 582 and covered an estimated 2.3 million acres. Only about half the land is in cane, the rest being used for diversified farming; still, this half accounts for about 40 percent of the sugarcane land in Cuba.

According to the government, there are about 115,000 cooperative members. But the grand total would add up to about 156,000, with the inclusion of seasonal workers, technicians, administrative employees, and those who run the people's stores managed by the cooperatives.

The so-called private sector of Cuba's agriculture still accounts for about 60 percent of the cane land, but private cane production is rigidly controlled by the government-directed National Association of Small Farmers, the government agricultural credit programs, and the nationalized sugar mills. Yet despite this tight control, the private cane lands were far more efficient in producing cane during this year's *zafra* than were the state-owned cooperatives. Reports indicate that they produced about 20 percent more cane per acre than the state lands.

Prospects Dim

Thus the once-prosperous sugar industry of Cuba has deteriorated—another example of what happens to an agricultural economy under Communist domination. The outlook is not good either. There is little chance of Cuba's 1963 sugar production increasing over this year's low level. Yet what sugar is exported next year will depend almost entirely on production, for the traditional sugar reserve is expected to be depleted. It is even doubtful whether Cuba will have enough sugar to meet its commitments to the Sino-Soviet Bloc under the present 5-year agreement.

Pakistan's Agriculture —15 years after independence

By STUART LERNER
Regional Analysis Division
Economic Research Service

Fifteen years ago this month, in violence and turmoil, Pakistan was carved out of two extreme ends of the Indian subcontinent. One end was a large chunk of rainy, tropical, densely populated Bengal on the east, and the other a much larger piece of a semi-arid, irrigated, and less densely populated region on the west.

How has Pakistan's agriculture changed since Partition, and what has remained as it has been for centuries?

The Pakistani agriculture of today presents a pattern of stagnation interspersed with pockets of progress and the changes wrought by adjustment to Partition. Above all, Pakistan is a nation of small farmers, unable to feed itself. Population has increased by more than one-quarter since 1947, but crop yields per acre, except for the 1960 and 1961 rice harvests, have either remained the same, or declined.

Though productivity has improved little, several major changes have occurred in Pakistan's agriculture. The country's former grain trade has been radically altered, and the traditional cotton and jute production, marketing and credit systems have been replaced. Industries, previously nonexistent, have been built to process the nation's agricultural raw materials. Further, the role of government in agriculture is increasing. This, in a country like Pakistan, with a culture unconducive to entrepreneurship and with a centuries-old tradition of looking to government for initiative, is considered by the nation's leaders to be necessary for economic development.

Grains

Prior to Partition, there was a great deal of intra-regional grain trade in northwest India. Much of the rice crop of what is now West Pakistan was sold to Indian markets in the interior; quantities of wheat moved into East Punjab and small amounts were exported via Karachi. Corn, barley, and millet were shipped from India into West Punjab. This integrated grain trade was ended.

For several years after 1947, Pakistan's wheat production was sufficient for domestic requirements, with minor quantities available for export. Since 1953, however, Pakistan has been an ever-increasing importer, taking 1.2 million metric tons in 1961, a quantity equal to 30 percent of domestic output. Per acre yields of wheat, corn, barley, sorghum, and millet have changed little.

People in East Pakistan are eating more wheat, though rice is more important by far in their diet. Wheat consumption has gone from 2 pounds per person in 1947-48 to almost 10 pounds under the stimulus of educational activities by Wheat Associates, U.S.A., Inc., and the Provincial Government, and ready access to P.L. 480 wheat at subsidized prices. Wheat acreage in the fertile North Bengal plains (northwest corner of the Province where all wheat is grown) has jumped one-third since Partition.

West Pakistan exported an average of 220,000 tons of rice per year during 1950-52. These exports stopped in 1952-53, however, when drought sharply curtailed production of all crops. The area now has again emerged as an exporter of special rice varieties to Middle East and East African ports. In 1961, 130,000 tons were shipped, with 250,000 tons probable in 1962.

Several factors contributed to this change. First, rice production is now double the 1947-48 level, because of steadily expanding acreage on newly irrigated land. Second, less rice had to be sent to East Pakistan because of that region's growing consumption of wheat, and the availability of Burmese rice and of U.S. P.L. 480 rice.

East Pakistan has long been grain-deficit. Even during the past 3 years, with rice crops at record levels and record per-acre yields, large imports have been necessary to maintain a minimum level of consumption. Some rice farmers are slowly increasing their use of fertilizer and improved practices, but it is still too early to know if these exceptional rice crops are a temporary phenomenon caused largely by weather or the beginning of a breakthrough in rice culture.

Cotton

Partition radically changed the pattern of cotton production, consumption, and trade in the subcontinent. Nearly the entire textile industry and two-thirds of the region's cotton production remained in India. Pakistan received the bulk of the upland cotton acreage, but with few mills to utilize it. India, therefore, became a huge importer of upland cotton; Pakistan, a major exporter.

In the next decade, Pakistan's infant textile industry grew rapidly—from less than 177,000 spindles in 1947 to more than 2 million in 1960. The country's raw cotton exports fell rapidly—from 7 to 8 percent of the world total to about 2 percent in 1958-60. Pakistan now exports about the same quantity of yarn it once imported, slightly more than 30,000 tons. Imports of cotton piece goods have all but ended; and there are now some exports.

Jute

Jute is by far Pakistan's most important export crop, earning half of farm cash income in East Pakistan,

Against the background of the giant Lloyd Barrage, which spans the Indus River near Sukkur, a bullock works an ancient Persian wheel to raise irrigation water. Both parts of Pakistan have water problems.

Harvesting wheat with sickles Though a wheat producer, Pakistan needs big annual imports.

Weighing and shaping rotis, a type of wheat bread baked in clay ovens. Rice is still the staple of East Pakistan's diet but wheat use is growing.

Transporting jute by river in East Pakistan. Jute and its products, country's biggest export, bring in 65 percent of its foreign exchange.

where all the jute is grown. Exports of baled fiber and jute manufactures account for 65 percent of the nation's foreign exchange earnings.

Prior to Partition, the area that is now East Pakistan produced almost 80 percent of the world's jute supply, most of which was shipped to Calcutta for manufacture or export. On Partition, without jute mills or established foreign markets for the raw fiber, Pakistan had no choice but to continue shipments to Calcutta. Since that time, India has expanded its jute acreage tremendously and now produces 40 percent of world output—and East Pakistan now has many jute mills.

Only about 10 percent of East Pakistan's raw fiber exports now go to India. While India's output of jute cloth, the major jute product, has barely changed since Partition, output in Pakistan has increased from nothing in 1951 to 255,000 tons in 1961, or one-quarter of India's.

Fertilizers

Fifteen years ago, most Pakistani farmers had never heard of chemical fertilizers. Now, under the influence of extension service demonstrations, technical assistance from the United States and other countries—and aided by a 50-percent subsidy—farmers are beginning to use fertilizer materials. In 1958, for example, Pakistani farmers used slightly less than 1 pound of plant nutrients on an average planted acre, but by 1961, they had increased their usage to 3.9 pounds per acre (95 percent imported). This is far from the 250 pounds used on an

average acre in Japan, but does signal some change in the production practices of many farmers.

Some observers—perhaps overly optimistic—expect fertilizer consumption per acre to perhaps double by the end of the present 5-year plan, with 40 percent coming from the domestic industry begun in 1958.

Marketing

After independence, a new marketing system had to be built and the transportation network reconstructed, especially in East Pakistan.

East Pakistan had been, in effect, a vast hinterland for the port of Calcutta, supplying it with rice, livestock products, and jute, while buying some of the city's industrial products. Partition separated East Pakistan from this transportation nerve center, and now, Dacca, the Provincial capital, and Khulna are becoming centers of domestic commerce for the area, and Chittagong, the major port.

Freight transport between the two parts of Pakistan is principally by boat. Improved dock facilities, and more frequent and reliable shipping service to and from Karachi are now increasing trade with West Pakistan enormously. Today, East Pakistan buys as much from the western wing (largely food items and cotton manufactures) as from foreign countries—and sells there goods equal to more than a quarter of its exports.

Water Use

West Pakistan is largely a dry country, with some 27 million acres of irrigated cropland, which is three-quarters of the Province's average yearly sown area. A large, controlled water supply has enabled West Pakistan to produce a greater diversity of agricultural products and obtain a better diet and a more balanced economy than its eastern counterpart.

In East Pakistan, torrential rainfall, plus drainage from the Province's huge rivers, submerges at least half the cultivated land for several months every year, producing nearly a rice monoculture. Crop area could be doubled by controlling floods during the monsoon season and by irrigation during the dry winter months. Only 2 percent of the sown area is now irrigated in the winter season. The feasibility of large-scale water development will be determined by the Province's first water resources survey, a 5-year study begun in December 1961 by FAO.

The agriculture of both India and West Pakistan depends in large measure on the Indus River. Partition, however, cut across the previously unified Punjab irrigation network, leaving in India dams that control water flowing into Pakistan. Bitter disputes over the control and use of these waters did not end until 1960, when the Indus Water Treaty was signed.

The Treaty's main purpose is to divide the waters of the Indus River and its five tributaries—reserving the Indus and the two western tributaries to Pakistan and the three eastern tributaries (20 percent of the flow) to India.

Construction costs for all the works necessary to allocate the waters are $1.3 billion in 1960-61 dollars. With Pakistan's 1960 gross national product standing at $6.2 billion and India's at $35.3 billion, neither has the financial resources required. A consortium[1] of countries will finance the bulk of the project, largely in grant form.

Completion in 1970, as scheduled, while eliminating a major cause of dispute between the two countries, will not significantly increase agricultural output. Little addition to the cultivated land base or greater use of available water will result.

Government Policy

Despite many obstacles, Pakistan has made some notable progress, particularly since 1958 under the reform-minded Ayub Government. The new government has stemmed inflation, increased tax revenues, pushed land reform, and assured continuous supplies of grain at reasonable prices for the first time in many years. It has fostered a serious attitude toward economic development where little existed before. Private enterprise, encouraged by the new economic climate, has been able to finance its share of the current Five-Year Plan (30 percent) in 2 years. Government planners had expected this would require 5 years. In addition, through an export incentive plan, the balance of payments position has been stabilized and the nation's export trade somewhat diversified.

Perhaps the most important change that has occurred in government is the realization by many officials that social change must precede and accompany economic change. Farmers must modify their traditional modes of thought—must be educated to accept new ideas and new practices.

To bring new ideas and materials to farmers, two Agricultural Development Corporations have been established, one in each wing of the country. As semiautonomous government organizations, they will combine extension service activities with the manufacture, purchase, and distribution of production supplies.

A Difficult Future

In general, agricultural progress made since independence has been slight, despite the important though isolated changes described here. Food output per person in 1961, even with record total production, was the same as the 1952-54 average and 26 percent below the 1935-39 level.

In the years ahead Pakistan will be extremely hard pressed to feed and clothe its growing population of 97 million, which will double in 30 years if its present growth rate continues. At the same time, the country's ability to expand its exports sufficiently to pay for heavy imports of capital equipment and sorely needed industrial raw materials is doubtful. Almost half of the actual investment in the first Five-Year Plan and investment planned in the second (to end June 1965) are government grants and loans from industrialized countries.[2]

The outlook for the next 15 years—based on past production trends, the present rate of adoption of modern agricultural practices, and the accelerating rate of population growth—is pessimistic. Despite government aid to agriculture, it is unlikely that any of these major factors will change significantly in this period.

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[1] Australia, Canada, New Zealand, United Kingdom, United States, and West Germany.

[2] Pakistan's request for $945 million in credits for the second and third years of its current Five-Year Plan was granted in January 1962 by the United States, West Germany, United Kingdom, Japan, France, Canada, and the World Bank.

Unless a vaccine against African swine sickness can be perfected, slaughter and deep burial or burning of carcasses is the only method known to prevent the spread of the infectious disease.

Portugal and Spain Are Hard Hit By African Swine Sickness

A vaccine against African swine sickness just discovered by a Portuguese scientist could, if effective under farm conditions, help wipe out a disease which has cost Portugal and Spain millions of dollars and prevented growth of Africa's swine industry.

The disease, almost 100 percent fatal, was introduced into the Iberian Peninsula in 1957, probably from Portugal's African territories. Confined at first to four Portuguese provinces, the fever was thought eradicated after a 4-month program of slaughtering all animals on contaminated farms. Then, in 1960 it broke out again and was identified in 171 different locations. This time the disease spread into Spain.

The source of contamination was traced to the use of town garbage in pig feeding. Most outbreaks have begun near urban centers where pig breeders use such residue to feed swine. Table scraps containing uncooked sausage, or pig meat from contaminated animals, infected the swill-fed pigs. Governments of both countries set up strict controls: garbage must be dumped far away from pig farms or, when this was not possible, disinfected and burned.

Control of the disease has been a serious economic burden. Spain spent $10 million in 1960 for control and indemnification of farmers; 120,000 sick and suspected pigs were slaughtered. In the same year, Portugal spent $1.4 million and killed some 16,000 pigs; more than 19,000 were killed, or died, the following year. Because the virus remains active for as long as a year, carcasses had to be burned or deeply buried with quicklime. Big trenches were bulldozed, and as many as 1,600 carcasses burned at a time in Portugal's 1960 control campaign.

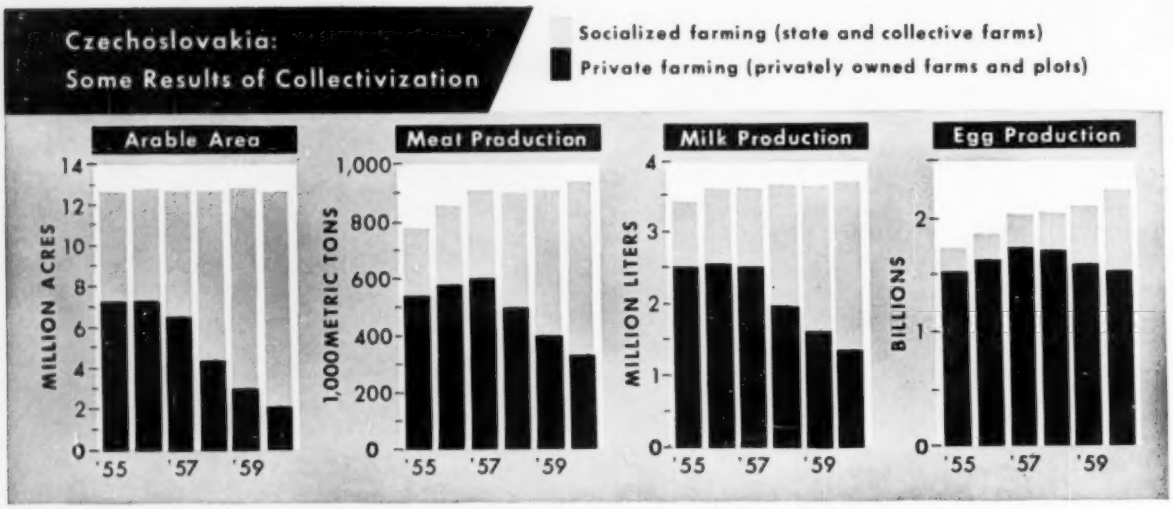
Both Spain and Portugal prohibited agricultural fairs, markets, and transport of pigs. Farmers and laborers on infected farms could not leave their holdings and restocking of the farms was forbidden for at least 6 months. Wild pigs in infected areas were shot, as well as stray cats and dogs which might carry the disease.

Perhaps hardest hit were the poorer classes in both countries, for whom pork makes up more than 50 percent of meat intake.

Previous sizable exports of pork products were banned, though even the strict measures undertaken by the Portuguese and Spanish authorities could not prevent some movement of pigs and meat over the French border through smugglers, gipsies, and Spaniards crossing the border to work in France. Even tourists could spread contamination.

The disease's invasion of the European continent posed a serious, immediate threat to Western Europe's 60 million hogs. France, Switzerland, and the United Kingdom forbade all imports of pork meat, and put strict controls into force. The French moved so quickly when hog fever broke out on their side of the border in 1961 that the suspected hogs were slaughtered and disposed of before it could be learned whether the fever was of European, or African, origin.

Slaughter will continue to be the only major means of control until the new vaccine, or another, proves effective through field trial. In July 1961, Madrid's *Servicio de Patalogia,* too, began study of the disease under a 3-year P. L. 480 research grant.



Czechoslovakia's Agriculture Still Lags

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Czechoslovakia is the most industrialized among the Soviet Bloc countries of Eastern Europe, and before World War II it also had a prosperous agriculture. But farm production in Czechoslovakia, unlike industrial production, has never regained its prewar level. The present stagnation in agriculture is now of major concern to the Communist leaders of the Czechoslovak Socialist Republic.

The current economic position of Czechoslovakia, as a highly industrialized country that imports foodstuffs and raw materials and exports industrial goods and technology, is not unlike its prewar position. Yet the postwar recovery rate has been strikingly different for industry and agriculture. In 1961, agricultural production was still only 90 percent of the 1934-38 average, and domestic agriculture was providing a smaller share of the country's needs than it did before the war. In contrast, industrial production was double that of 1934-38, and export trade was prospering.

What has happened to slow down Czechoslovakia's agricultural economy in a period when the nations of Western Europe have been enjoying booms both in industry and in agriculture? The answer lies in the course of events since the Communist takeover occurred in 1948.

Postwar Development

The war disrupted agriculture in Czechoslovakia as elsewhere in Europe; but after the war, political developments in the country caused additional disruption. The main objective of the postwar government was to redevelop and expand industrial production, and capital was used almost entirely for rebuilding industry.

In spite of this, agricultural production improved at a rapid rate until 1948, when it reached about three-fourths of the prewar level. In that year the Communists took over complete control of the government. At once they began to institute the socialization of agriculture.

Today, this is virtually complete. The only remaining private farming is on the family plots of collective members and the predominantly marginal farms in the hilly sections of Slovakia. About 86 percent of the agricultural land has been socialized, and the government at present intends to proceed no further.

Effect on Crops

Recurrent collectivization drives have in part contributed to the slow and fluctuating pace of agricultural development. Total area sown to grain has decreased 37 percent from the prewar average, although total production has decreased only 9 percent owing to higher yields. The area sown to bread grains (wheat and rye) has decreased 41 percent during this same period, and that sown to feed grains (barley, oats, and corn), 10 percent. Before the war, wheat and rye production amounted to about 1.5 million metric tons each; but in 1961, 500,000 more tons of wheat were produced than of rye, reflecting a shift away from rye bread.

Potato acreage has dropped about 30 percent since prewar days, while output has dropped even more—40 percent—as a result of the poor yields. In sugar beets, yields have been stagnant, with production increasing only at about the same rate as acreage.

There have been other shifts in sown acreage—for example, from grains to rapeseed and flaxseed—but the largest shift has been to fodder plants, in support of the postwar drive to increase livestock.

Effect on Livestock

Livestock numbers, except for cows and horses, are above the prewar average: The trend in recent years has been for horses and sheep numbers to decline; total cattle, swine, total poultry, and hen numbers to increase; and cow numbers to remain about the

same. Communal ownership of livestock has been less successful than the socialization of land areas, primarily because collective farm members prefer to keep their animals on their private plots and are allowed to do so. Although 86 percent of the arable land is collectivized, only between 67 and 78 percent of the larger animals are collectively owned, and the figure for collectivized poultry is even smaller—40 percent.

Output of the principal livestock products, except for pork, remains below the prewar averages. A 126-percent increase in pork production, from the prewar 244,000 metric tons to 552,000 in 1960, resulted partly from the increase in swine numbers, although a good share of it is due also to higher slaughter weights and improved breeding. Beef production, however, has declined slightly, from 358,000 tons to 347,000, even though cattle numbers are up. And milk production is 17 percent below prewar as a result of lower yields per cow, whereas cow numbers are down only 14 percent. Even less productivity is indicated for hens: although hen numbers are up 65 percent over prewar, egg production is down 38 percent. And of total eggs produced, 1.5 billion came from private farms in 1961 just as in 1955, though the privately farmed area had shrunk from 7.3 million acres to 2.1 million.

Means of Production

Fertilizer application (in pure nutrients per acre of agricultural land) increased from the prewar 10.4 pounds to 60.6 by 1959-60. Numbers of tractors, both wheeled and caterpillar types (in 15 hp. equivalent), increased from about 4,000 before the war to about 100,000 in 1961. Nearly all tractors belong to the "socialized sector" of agriculture; Machine Tractor Stations own and operate about 25 percent of them.

Before 1958, about half the tractors were in the MTS. Here they were used to further collectivization. First priority for their services being given to the state farms and collectives, the private farmer was under strong pressure to join a collective if he wanted to avail himself of mechanized draft power. After 1959, the role of the MTS was altered. Today, with most equipment transferred to collectives, the MTS serve primarily as repair and service stations.

The lack of significant increases in farm production suggests, however, that all these capital investments were not enough to offset the postwar decrease in farm labor. This decrease has been influenced by the lack of farmer incentive as a result of agricultural collectivization. Poor management on state and collective farms has undoubtedly also contributed to the slow recovery of agriculture.

Foreign Trade

Before the war, about 90 percent of Czechoslovakia's foreign trade was with the West; today, about 70 percent is with the Sino-Soviet Bloc. Major imports are foodstuffs and agricultural raw materials for industry. Major exports are manufactured industrial goods, primarily machinery. In recent years, trade with the underdeveloped countries has received increased emphasis. Czechoslovakia provides complete factory installations, industrial equipment, and technicians in exchange for farm products, either on a barter arrangement or through extended credit at low interest rates.

Czech-U.S. trade, of some importance before the war, never regained its prewar level after the initial postwar aid programs were discontinued. In 1960, total trade turnover between the two countries amounted to approximately $16 million. About 15 percent of this was agricultural commodities, and the principal ones imported from Czechoslovakia were cooked hams, angora rabbit hair, feathers, and spices.

Czechoslovakia now has an average per capita caloric intake of about 3,000 per day, a level maintained during the past several years. However, about half these calories are accounted for by the grains and potatoes of the traditional starchy Czech diet; and the large postwar increase in food imports is the basis for most of the improvement in quantity. Czechoslovakia has always been an importer of agricultural products, and in view of its favorable trade balance, it will probably continue to put an emphasis on indus-

(Continued on page 20)

Czechoslovakia: Area and Production, Principal Crops

Crop	Area		
	Average		
	1934-38	1954-58	1961[1]
	1,000 acres	1,000 acres	1,000 acres
Wheat	2,179	1,796	1,589
Rye[2]	2,429	1,270	1,144
Barley	1,614	1,620	1,720
Oats[3]	1,848	1,292	1,149
Corn[4]	259	417	497
Total grain	8,329	6,395	6,092
Sugar beets	410	575	[5]610
Potatoes	1,767	1,540	1,273
Rape	12	81	136
Flax	37	133	116
Fodder crops	2,214	2,929	3,694
	Production		
	Average		
	1934-38	1954-58	1961[1]
	1,000 met. tons	1,000 met. tons	1,000 met. tons
Wheat	1,513	1,398	1,380
Rye[2]	1,577	941	850
Barley	1,109	1,275	1,505
Oats[3]	1,212	929	930
Corn[4]	225	419	520
Total grain	5,636	4,962	5,185
Sugar beets	4,664	6,012	7,020
Potatoes	9,635	8,240	5,690
Rape	7	40	[6]
Flax	[6]	122	[6]
Fodder crops	3,863	5,126	[6]

[1] USDA estimate, preliminary. [2] Includes rye mixtures. [3] Includes oat/barley mixtures. [4] Grain only. [5] 1960. [6] Not available.

Czechoslovakia: Animals

Animal	Total numbers, Jan. 1		
	Average		
	1934-38	1954-58	1961
	1,000 head	1,000 head	1,000 head
Total cattle	4,296	4,091	4,387
Cows only	2,384	2,094	2,047
Swine	3,144	5,007	5,962
Sheep	458	976	646
Total poultry	39,675	23,025	28,157
Hens only	15,140	20,074	24,972
Horses	656	538	330
	Percent on socialized farms		
	Average		
	1934-38	1954-58	1961
	Percent	Percent	Percent
Total cattle	0	36	78
Cows only	0	28	67
Swine	0	40	71
Sheep	0	57	72
Total poultry	0	15	40
Hens only	0	[1]	[1]
Horses	0	[1]	[1]

[1] Not available.

Truckload of tiny tomato plants in three-tier flats arrives at Windsor, for southwestern Ontario farms. Once the trucks start coming in from Georgia they do so regularly through May. Each truck carries 574,000 plants.

Photographs from Canadian Department of Agriculture

Tomato Seedlings Cross the Border

In the big two-way farm trade between Canada and the United States there is a small item that never shows up in trade statistics—the millions of tomato seedlings that are trucked from Georgia to Ontario each year

This trade in transplants has been going on for years and is getting larger all the time. In May 50 million plants crossed the border at Windsor, to be grown by Canadian farmers for the country's canning industry.

Two reasons are given for these imports: first, the Georgia plants are among the hardiest in the world, and second, they mature earlier than the Canadian varieties, which permits more economical marketing.

Above, Canadian workers unload the transplants from refrigerated truck, for shipment to canning factories where they are distributed to contract growers. Left, Canadian Department of Agriculture stenographer poses with an armful of seedlings.

West German Agriculture in EEC

FAS's economic adviser, Dr. J.H. Richter, here summarizes a recent study analyzing the prospects for West German agriculture and the adjustments it may need as the result of economic growth and integration in the European Economic Community.

Germany's renowned journal of agricultural economics, *Agrarwirtschaft*, this year devoted a special monograph to an analysis of the problems that German agriculture will face in the next couple of decades.[1]

Of particular interest to U.S. readers are the authors' estimates of West Germany's probable needs for agricultural imports in 1965, 1970, and 1975. These estimates are based on two separate hypotheses. One is that Germany's economic growth will be medium, with an annual per capita increase in gross national product of 3.4 percent to 1965 and 2.8 percent thereafter to 1975. The other is that growth will be high—4.2 percent to 1965 and 3.6 percent later.

The authors have also used two different price assumptions, one for Germany's prices as they would be without the Common Market, and the other for prices under the Common Market. The first assumption implies that price relationships for agricultural products would remain unchanged from what they were in 1958-59 until 1975; the second, that there will be an EEC (and therefore a German) wheat price corresponding to the weighted average for all EEC countries in 1958-59, or about 15 percent below Germany's 1958-59 "normal" price.

Influence of the Common Market

From the EEC wheat price, the authors have derived other prices, in terms of "the economics of farm management and markets." They assume that EEC prices will be adjusted halfway down by 1965 and all the way down by 1970. In general, they believe that all these price assumptions are justified by the facts of life within the Common Market: that a high degree of self-sufficiency, the requirements of an enlightened trade policy, and the internal pressures that will result are bound to pull the EEC producer price level down below the present German level.

However, it is interesting to note that, according to this study, whatever spread there may be between the two estimated levels of Germany's supply and demand for agricultural products —and, therefore, its import needs— would be due to the differences in economic growth and only in very small part to the presence or absence of a Common Market.

The reasons for this conclusion are to be found in two basic propositions. One is that the lower EEC producer prices will not lead to decreased agricultural production in Germany. Price pressure will probably force German agriculture into applying part of the technical and organizational knowledge still pent up, and this will increase yields. The other proposition is that the assumed decline in producer prices will actually have little or no effect upon consumption. This is partly because some of the price decline will be effected through the abolition of producer subsidies; partly because producer price changes are reflected in very small changes at the retail level; and partly because consumer demand for many of the products is but little affected by price variations.

Predictions on Import Needs

The study indicates that Germany's crop production is likely to go on increasing between now and 1975, by about 1 percent a year as against 1.2 percent in the 1950's. Acreage will be practically unchanged, as will acreage distribution by crops. Direct uses for food of domestic output from the soil are likely to decline somewhat, so that all of the net increase in vegetable output would go into indirect food uses in the form of livestock products. Total food production (both vegetal and animal) will increase by an estimated 1.8 percent a year by volume.

On the whole, consumption of agricultural products is expected to increase more than production, except for grains. As a result, net imports by Germany from all sources, including other EEC countries, will rise, in some cases even to a marked degree—again, except for grains. Direct *grain* consumption for either food or industry will change very little. The largest

[1] "Landwirtschaft im Strukturwandel der Volkswirtschaft," by Professors R. Plate and E. Woermann, assisted by Dr. D. Grupe, in *Agrarwirtschaft* (Sonderheft 14), Alfred Strothe Verlag, Hanover, Germany, 1962.

WEST GERMANY: IMPORTS OF SELECTED AGRICULTURAL PRODUCTS IN 1958-59, WITH ESTIMATES TO 1975

Product	1958-59	Assuming a medium rate of economic growth[1]			Assuming a high rate of economic growth[2]		
		1965	1970	1975	1965	1970	1975
Grains:[3]	*1,000 m.t.*	*1,000 m.t.*	*1,000 m.t.*	*1,000 m.t.*	*1,000 m.t.*	*1,000 m.t.*	*1,000 m.t.*
For food and industry	2,737	2,100	2,050	2,150	2,200	2,100	2,200
For feed	2,157	2,300	2,500	2,200	2,450	2,800	2,600
Total	4,894	4,400	4,550	4,350	4,650	4,900	4,800
Vegetables (excl. potatoes)	656	1,046	1,302	1,558	1,112	1,420	1,715
Fresh fruit (excl. citrus)	684	626	919	1,168	854	1,278	1,676
Citrus fruit	1,066	1,511	1,655	1,777	1,639	1,757	1,882
Fats and Oils[4]	681	726	736	746	721	724	721
Oilcake and meal[5]	1,286	1,937	2,373	2,857	1,993	2,442	2,932
Beef and veal	129	129	135	282	129	220	408
Pork	92	92	92	92	92	92	92
Poultry meat	[6]74	203	266	312	220	303	350
Butter	17	—	—	—	—	—	—
Cheese	92	92	92	92	92	92	92
Eggs	301	352	360	361	365	372	373
Fishmeal and meat meal	132	181	269	349	198	299	446

[1] 3.4 percent to 1965, 2.8 percent 1965 to 1975. [2] 4.2 percent to 1965, 3.6 percent 1965 to 1975. [3] Some figures rounded. [4] Vegetable and marine, in terms of pure fat. [5] Including production from imported seeds. [6] 138 in 1960.

part of an expected increase of 4 million metric tons in total grain production by 1975 (about 2 percent per year) will thus be used for feed. Import requirements are likely to decline somewhat, or at best to be maintained at 1958-59 levels.

For *sugar*, the study assumes that total requirements will gradually be supplied by local production. For "special crops" such as *vegetables, hops,* and *tobacco,* the formidable increase anticipated in consumption will be covered almost entirely by imports. For *fruit,* imports are also likely to show a sharp increase, although domestic production too will expand.

Consumption of fluid *milk* will continue to be covered by domestic output. For *cheese,* it is assumed that imports will remain unchanged from 1958-59. *Butter* consumption will be covered entirely by domestic output.

Production of *slaughter cattle* has greatly increased in recent years, and for this purpose more of the calf crop has had to be put on feed. At the beginning of the 1950's, about 52 percent of the calves were slaughtered; in recent years the percentage has declined to about 36. Though it is assumed that this tendency will continue, its limits will probably be reached by 1970, so that the study expects a considerable increase in direct imports of *beef* and *veal* from then on. A very considerable rise in *pork* consumption, however, is assumed to be fully covered from domestic expansion.

The appraisal of the *poultry* situation is particularly interesting to U.S. producers. Like the production of pork, that of poultry meat is highly elastic; with unlimited availability of domestic or imported feed, Germany's production will be largely determined by consumer demand. The authors expect, however, that German production will be unable to maintain its present percentage share of the market, and they look for imports to cover the greater part of the considerable expansion they foresee in consumption. Their reason for this expectation is that present German production techniques are lagging behind those of foreign producers, "especially the United States and, within EEC, the Netherlands."

There will also be a very great increase in *egg* consumption, most of it covered by domestic output, which is no longer hampered by comparatively high feed grain protection and also has gained from technical progress.

Despite the increases in domestic feed output, the substantial increase in livestock consumption will raise imports not only of livestock products (except dairy) but also of *oilcake* (including that produced from imported oilseeds). Oilcake and oilseed imports are estimated at a cake equivalent of almost 3 million tons for 1975, compared with about 2 million for 1965 and 1.3 million in 1958-59. Fishmeal imports will also expand. Since, at the same time, import requirements for vegetable oils would increase very little, the outlook for imports from countries that could or would only supply the "whole" product (for example, only soybeans, not cake) would seem to be unfavorable.

Problems of Adjustment

With continued strong economic growth, the input-output price relationships in agriculture will deteriorate; farm wages will go up, but EEC producer prices will bring in smaller farm incomes. This imbalance will create additional need for raising productivity through mechanization and other means. The reduction in labor input will result in a decline in the number of people engaged in full-time farm work.

Within the EEC, Germany can expect to find that its total income from agriculture will decline at first and later increase only slowly. By 1975, income will fall about 13 percent short of what it would be if the EEC had not come into being. Only successful measures of adjustment and increase in productivity could modify this prospect in a favorable direction. Much, of course, will depend on the extent to which Germany can move full-time workers out of agriculture.

Specifically, the authors point out that families with "dwarf" farms having 12 acres or less in agricultural use will have to seek more part-time nonfarm employment. Families farming from 12 to 25 acres will have to seek greater mechanization and put surplus labor into gainful livestock expansion. For farms of 25 acres and up, all sorts of productivity reserves still seem to exist, especially on the larger farms. Among these possibilities are both intensification and extensification, depending upon the individual farm.

The authors conclude that the possibilities of raising farm incomes through price support have almost vanished. Attention must be directed, therefore, toward adjustments in agricultural structure and farm employment. Aside from proposals for traditional government aid in land consolidation, the building of farm roads, and the like, the authors' most notable proposal is for temporary direct income support not tied to specific commodities. Such support could be capitalized. For farms capable of reorganization, the funds could be used in needed investments; for nonviable farms, they could facilitate transfer to nonfarm jobs and early retirement.

South Africa Starts Orange River Project

Work has begun on a dam and power project in the Republic of South Africa which, when completed, will be several times the size of the Tennessee Valley Authority or Ghana's Volta River Project.

The Orange River Project, as it is called, will provide flood control, power, and irrigation for over 720,000 acres of Cape Province. A six-phase project, it will take some 30 years to complete and will consist of a system of 12 dams and canals on the Orange, South Africa's largest river.

The total cost of the project will be more than $600 million, to be financed by the Republic, possibly with the aid of foreign loans.

Included in the first construction phase are two huge dams, a 50-mile water diversion tunnel for irrigation and hydroelectric power on the Fish and Sunday Rivers, and a water pipeline to Bloemfontein, capital of Orange Free State. Several irrigation setups are also planned.

When completed, the Orange River Project will provide a power network from the Atlantic to the Indian Ocean. It will irrigate land for forage and other crops in the semiarid western sheep and cattle districts adjacent.

By CHARLES H. BARBER
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U.S. cotton exports for the 1961 marketing year* that just ended on July 31 are estimated at nearly 5 million bales. This is a substantial reduction from the high levels of 6.6 million for 1960 and 7.2 million for 1959, but is 15 percent higher than the average for the 5 previous years.

This decline in last year's cotton shipments may be explained by cyclical developments that date from 1958. That year cotton production outside the United States reached a new record high, and prices of most foreign growths declined by 15-25 percent while U.S. prices for export showed little change. At the same time, stocks outside the United States were reduced to minimum levels in both importing and exporting countries, and a moderate drop in consumption occurred in most Free World importing countries.

Over any long period, the United States is a residual supplier of cotton on world markets because other producing countries usually dispose of approximately all their exportable supplies within a year after harvest. U.S. exports in a season are approximately equal to the excess of foreign consumption over foreign production—plus or minus any change in stocks outside the United States.

Consumption

Foreign consumption in the marketing year that ended last month is estimated at 38.5 million bales, or about 6 million above foreign production. Stocks, however, are down by more than a million bales from those of a year ago.

In the 1962 marketing year, foreign consumption is expected to show some improvement, and foreign production may rise by a million bales. Stocks are relatively low, and any rebuilding of stocks would be determined mainly by the current trend in mill consumption and by the outlook for prices during and after 1962. If no significant change in stocks occurs this year, a probable increase in foreign production could reduce the excess of consumption over production to around 5 million bales, and this would be the prospective U.S. export total.

Price Trends

Prices of most growths of upland cotton in world import markets have trended upward since the long-time lows of mid-1959. At the same time, gradual increases in U.S. export prices have provided a stabilizing effect on world cotton prices.

Relatively low prices, with an uptrend after 1958, were partly responsible for a sharp rise in mill consumption in foreign Free World importing countries—from 15.4 million bales in 1958 to 17.9 million in 1960. Smaller increases in mill use were reported for Foreign Free World exporting countries and for the Communist Bloc countries. Inventories of yarns and textiles accumulated during the 2 years and were partly responsible for reduced mill operations while these inventories were being adjusted to lower demand.

This uptrend in cotton prices plus improved textile sales encouraged cotton buyers in importing countries to take more than the mills were using. As a result, their stocks rose from 5.6 million bales on August 1, 1959, to 6.3 million 2 years later. In the meantime, world cotton production in 1960 hit a record of 47.2 million bales.

The move to reduce inventories that was begun by some of the major consuming countries in 1960 became more general last year. Foreign Free World importing countries lowered their cotton stocks by about 1 million bales, and small decreases occurred in foreign Free World exporting countries and in Communist countries.

This Year's Outlook

These adjustments in cotton consumption and stocks are mainly responsible for the world cotton trade's dropping from an all-time record of 17.4 million bales in 1959 to 16.8 million in 1960 and to less than 15.5 million last year. But the current low stock levels in nearly all foreign countries justify some optimism for the export demand this year, since consumption is expected to improve.

Thus far, though, there is nothing to indicate that the world cotton trade will be increased significantly above that of last year. Cotton importers are still uncertain as to how long the current dip in mill use will last and what effect an expected rise in non-U.S. cotton production will have on world cotton prices next season.

The steady rise in world cotton prices during the past 3 years gave a stimulus to increased acreage outside the United States. This expansion amounted to about 2.9 million acres in 1961; still, production declined that year by about 0.5 million bales, largely because of poor yields in Egypt,

* All yearly figures given in this article refer to the cotton marketing year; i.e., 1961 is the marketing year that began on August 1, 1961, and ended on July 31, 1962.

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India, Uganda, and Nigeria. A return to normal yields in these countries, even with no increase in acreage, could result in a foreign production increase of a million bales or more—most of it likely to be in Egypt and India.

Export Programs Continue

All U.S. cotton export programs in effect last year will be continued this year but not necessarily with sums equal to those available in 1961. (Export programs last year accounted for about 1.3 million bales compared with 1.7 million in 1960.) The initial export payment rate for this season is 8.5 cents a pound, the same as a year ago. Loan prices to growers are approximately the same too.

Inventories of upland cotton, about 1.5 million bales, held by the Commodity Credit Corporation (CCC) on August 1, 1961, were available for sale at a minimum price of 115 percent of current loan rate plus reasonable carrying charges. No significant quantity was sold. This year's CCC acquisition from the 1961 crop cotton is expected to total nearly 3.5 million bales. An export sales program will be initiated on August 1 under which CCC inventories will become available on a competitive bid basis. The 1961 export payment program is being continued without change.

Lagging Czech Agriculture

(Continued from page 15)

trial production and exports and buy agricultural products abroad.

For 1962, assuming normal weather conditions and the continuation of current government programs for agriculture, the outlook is for only a slight increase in overall agricultural production.

The current short-range agricultural goal is the achievement of a 22.8-percent increase over 1961 levels by 1964 instead of 1965. The longer range goal calls for the productivity of agriculture to equal that of industry by 1970. In the light of the average 1.7-percent production growth actually attained from 1956 to 1960, both goals seem unlikely of fulfillment.

Insufficient capital investment, coupled with poor managerial practices and lack of farmer incentive, places a definite limit to increases in Czech agricultural production. The recent government policy of discrediting the private plots and stressing the need for their elimination suggests that a further decrease in livestock production may be forthcoming. Thus, unless there is a major change in farm policy, agricultural production in Czechoslovakia may be expected to remain on the plateau it has occupied during the past several years.

Political Destiny

(Continued from page 7)

people at large are indigenous—and the two must be brought together in an effectively functioning relationship. Other countries are engaged in comparable efforts at democratization.

Some countries, however, have had independence from the colonizing government for a century or more; and yet the second transfer of power —to the people at large—has not been achieved nor even seriously undertaken. For them, and for the many other countries which have not yet had time to begin the process, the hard, rough process of political and social development still lies ahead. Perhaps the greatest challenge and the toughest task facing them is that of achieving this transfer of power to the people at large quickly enough for it to be done in an orderly way.

This is the challenge which destiny now gives to the United States Department of Agriculture and the American Land-Grant Universities: to provide, when called on by the underdeveloped countries, the foundation of knowledge upon which to build a productive and prosperous agriculture, within a structure of institutions which will direct their social and political development toward freedom, peace, and democracy.